

**Communicable Disease Epidemiology
and Immunization Section**

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www.kingcounty.gov/health

Health Advisory – Increase in Suspected Cases of Acute Flaccid Myelitis, King County and Washington State, 29 October 2016

Action requested:

- **Be aware that since October 1, 2016 eight suspected cases of AFM have been reported among Washington residents (three from King County) and are currently under investigation. Confirmation of these cases is pending.**
 - **Clinicians should be vigilant for and consider AFM in patients presenting with onset of acute limb weakness AND a magnetic resonance image (MRI) showing spinal cord lesion largely restricted to gray matter* AND spanning one or more spinal segments OR cerebrospinal fluid (CSF) showing pleocytosis (white blood cell count >5 cells/mm³)**
 - **Collect specimens from patients suspected of having AFM as early as possible in the course of illness including:**
 - CSF
 - Serum (acute and convalescent) and whole blood
 - Two stool specimens separated by 24 hours (whole stool preferred over rectal swab)
 - Upper respiratory tract sample (in order of preference: NP swap > nasal swab > nasal wash/aspirate > oropharyngeal swab (an oropharyngeal swab (particularly important if polio is suspected).
- |
- **Report confirmed or suspected cases of AFM promptly to Public Health at (206) 296-4774. Public Health will provide guidance on laboratory testing of specimens for infectious etiologies associated with AFM.**
 - **Please complete the patient summary form (attached) found at the following link when reporting patients to Public Health: (<http://www.cdc.gov/acute-flaccid-myelitis/hcp/data.html>).**

Background: 50 confirmed cases of acute flaccid myelitis (AFM) from 24 states have been reported to CDC during January 1–August 31, 2016 among persons 6 months to 64 years of age (median 7 years). During the same period in 2015, CDC received 21 confirmed case reports from 16 states. No etiology for the infections has been established although a potential association with Enterovirus D-68 has been reported. AFM is also known to be associated with other neurotropic enteroviruses, adenovirus, herpes viruses, arboviruses including West Nile virus, and other etiologies. Onset dates are available for four of the WA State cases and range from 9/14/16–10/22/16. Prior to these cases, one probable AFM case in a Washington resident was reported during 2015–2016YTD.

Resources

- **CDC AFM information:** <http://www.cdc.gov/acute-flaccid-myelitis/index.html>
- **CDC guidance on clinical management of patients with AFM:** <http://www.cdc.gov/acute-flaccid-myelitis/downloads/acute-flaccid-myelitis.pdf>
- **Specimen collection guidance:** <http://www.cdc.gov/acute-flaccid-myelitis/hcp/instructions.html#table>

Acute Flaccid Myelitis: Patient Summary Form

FOR LOCAL USE ONLY

Name of person completing form: _____ State assigned patient ID: _____
 Affiliation _____ Phone: _____ Email: _____
 Name of physician who can provide additional clinical/lab information, if needed _____
 Affiliation _____ Phone: _____ Email: _____
 Name of main hospital that provided patient's care: _____ State: _____ County: _____

-----DETACH and transmit only lower portion to limbweakness@cdc.gov if sending to CDC-----

Acute Flaccid Myelitis: Patient Summary Form

Form Approved
OMB No. 0920-0009
Exp Date: 06/30/2019

Form to be completed by, or in conjunction with, a physician who provided care to the patient during the neurological illness. Once completed, submit to Health Department (HD). HD can also facilitate specimen testing.

1. Today's date ____/____/____ (mm/dd/yyyy)
2. State assigned patient ID: _____
3. Sex: ☐ M ☐ F
4. Date of birth ____/____/____
- Residence: 5. State _____ 6. County _____
7. Race: ☐ American Indian or Alaska Native ☐ Asian ☐ Black or African American ☐ Native Hawaiian or Other Pacific Islander ☐ White (check all that apply)
8. Ethnicity: ☐ Hispanic or Latino ☐ Not Hispanic or Latino
9. Date of onset of limb weakness ____/____/____ (mm/dd/yyyy)
10. Was patient admitted to a hospital? ☐ yes ☐ no ☐ unknown
11. Date of admission to **first** hospital ____/____/____
12. Date of discharge from **last** hospital ____/____/____ (or ☐ still hospitalized at time of form submission)
13. Did the patient die from this illness? ☐ yes ☐ no ☐ unknown
14. If yes, date of death ____/____/____

SIGNS/SYMPTOMS/CONDITION:				
	Right Arm	Left Arm	Right Leg	Left Leg
15. Since neurologic illness onset, which limbs have been acutely weak? [indicate yes(y), no (n), unknown (u) for each limb]	Y N U	Y N U	Y N U	Y N U
16. Date of neurologic exam (recorded at most severe weakness to point of completing this form) (mm/dd/yyyy)	____/____/____			
17. At the time of most severe weakness, reflexes in the most affected limb(s):	<input type="checkbox"/> Areflexic/hyporeflexic (0-1) <input type="checkbox"/> Normal (2) <input type="checkbox"/> Hyperreflexic (3-4+)			
At ANY time during the illness, was there:				
18. Any sensory loss/numbness in the affected limb(s), at any time during the illness? (paresthesias should not be considered here)	Y N U			
19. Any pain or burning in the affected limb(s)?	Y N U			
	Yes	No	Unk/Not Recorded (NR)	
20. Sensory level on the torso (i.e., reduced sensation below a certain level of the torso)?				
21. Did patient have any of the cranial nerve features below? (If yes, check all that apply):				
<input type="checkbox"/> Diplopia/double vision (If yes, circle the cranial nerve involved if known: 3 / 4 / 6)				
<input type="checkbox"/> Loss of sensation in face <input type="checkbox"/> Facial droop <input type="checkbox"/> Hearing loss <input type="checkbox"/> Dysphagia <input type="checkbox"/> Dysarthria				
22. Bowel or bladder incontinence?				
23. Change in mental status (e.g., confused, disoriented, encephalopathic)?				
24. Seizure(s)?				
25. Receipt of positive pressure ventilation, including invasive or non-invasive ventilation and including BiPAP or CPAP?				

Other patient information:

In the 4-weeks BEFORE onset of limb weakness, did patient:	Yes	No	Unk/NR	
26. Have a respiratory illness?				27. If yes, onset date ____/____/____
28. Have a gastrointestinal illness (e.g., diarrhea or vomiting)?				29. If yes, onset date ____/____/____
30. Have a new onset rash?				31. If yes, onset date ____/____/____
32. Have a fever, measured by parent or provider and $\geq 38.0^{\circ}\text{C}/100.4^{\circ}\text{F}$?				33. If yes, onset date ____/____/____

Public reporting burden of this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information including suggestions for reducing this burden to CDC/ATSDR Reports Clearance Officer; 1600 Clifton Road NE, MS D-74 Atlanta, Georgia 30333.

				Form Approved OMB No. 0920-0009 Exp Date: 06/30/2019
34. Receive any immunosuppressing agent(s) (BEFORE WEAKNESS ONSET)?				35. If yes: Date of first administration: ____/____/_____ Name of medication: _____ Mode of administration: <input type="checkbox"/> IM <input type="checkbox"/> IV <input type="checkbox"/> Oral Dosage / duration / overall amount administered: _____
36. Travel outside the US?				37. If yes, list country: _____
38. At onset of limb weakness, does patient have any underlying illnesses?				39. If yes, list: _____
40. On the day of onset of limb weakness, did patient have a fever?				(see definition for fever above in 32.)

Polio vaccination history:

41. How many doses of inactivated polio vaccine (IPV) are documented to have been received by the patient before the onset of weakness?	_____ doses <input type="checkbox"/> unknown
42. How many doses of oral polio vaccine (OPV) are documented to have been received by the patient before the onset of weakness?	_____ doses <input type="checkbox"/> unknown
43. If you do not have documentation of the <i>type</i> of polio vaccine received what is total number of documented polio vaccine doses received before onset of weakness?	_____ doses <input type="checkbox"/> unknown

Neuroradiographic findings:

MRI of spinal cord 44. Was MRI of spinal cord performed? ☐ yes ☐no ☐ unknown

45. If yes, how many documented spinal MRIs were performed? _____

If yes to Q44, complete Q46-Q71 based on **most abnormal spine MRI** 46. Date of most abnormal spine MRI ____/____/____

47. Levels imaged: ☐cervical ☐thoracic ☐lumbosacral ☐unknown

48. Location of lesions:	<input type="checkbox"/> cervical cord <input type="checkbox"/> thoracic cord <input type="checkbox"/> conus <input type="checkbox"/> cauda equina <input type="checkbox"/> unknown	Levels of cord affected (if applicable): 49. Cervical: _____ 50. Thoracic: _____
For cervical and thoracic cord lesions	51. What areas of spinal cord were affected?	<input type="checkbox"/> predominantly gray matter <input type="checkbox"/> predominantly white matter <input type="checkbox"/> both equally affected <input type="checkbox"/> unknown
	52. Was there cord edema?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown
53. Gadolinium (GAD) used:	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	(If NO, skip to question 59)
For cervical, thoracic cord or conus lesions	54. Did any gray matter lesions enhance with GAD?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown
	55. Did any white matter lesions enhance with GAD?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown
	56. Did any cervical / thoracic nerve roots enhance with GAD?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown
For cauda equina lesions	57. Did the ventral nerve roots enhance with GAD?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown

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	58. Did the dorsal nerve roots enhance with GAD?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown
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MRI of brain

59. Was brain/brainstem/cerebellum MRI performed? ☐ yes ☐ no ☐ unknown (If NO, skip to Q72) **60.** Date of study ____/____/____

61. Any supratentorial (i.e. lobe, cortical, subcortical, basal ganglia, or thalamic) lesions	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	
	62. If yes, indicate location(s)	<input type="checkbox"/> cortex <input type="checkbox"/> basal ganglia <input type="checkbox"/> thalamus <input type="checkbox"/> subcortex <input type="checkbox"/> unknown <input type="checkbox"/> Other (specify): _____
63. Any brainstem lesions?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	
	64. If yes, indicate location:	<input type="checkbox"/> midbrain <input type="checkbox"/> pons <input type="checkbox"/> medulla <input type="checkbox"/> unknown
65. Any cranial nerve lesions?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	
	66. If yes, indicate which CN(s):	CN ____ <input type="checkbox"/> unilateral <input type="checkbox"/> bilateral CN ____ <input type="checkbox"/> unilateral <input type="checkbox"/> bilateral CN ____ <input type="checkbox"/> unilateral <input type="checkbox"/> bilateral CN ____ <input type="checkbox"/> unilateral <input type="checkbox"/> bilateral
67. Any lesions affecting the cerebellum ?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	
68. Gadolinium (GAD) used:	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	(If NO, skip to question 72)
69. Did any supratentorial lesions enhance with GAD?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	
70. Did any brainstem lesions enhance with GAD?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	
71. Did any cranial nerve lesions enhance with GAD?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	

72. Was an EMG done? ☐ yes ☐ no ☐ unknown If yes, date ____/____/____ (mm/dd/yyyy)

73. If yes, was there evidence of acute motor neuropathy, motor neuronopathy, motor nerve or anterior horn cell involvement? ☐ yes ☐ no ☐ unk

CSF examination: 74. Was a lumbar puncture performed? ☐ yes ☐ no ☐ unknown

If yes, complete 74 (a,b) (If more than 2 CSF examinations, list the first 2 performed)

	Date of lumbar puncture	WBC/mm3	% neutrophils	% lymphocytes	% monocytes	% eosinophils	RBC/mm3	Glucose mg/dl	Protein mg/dl
74a. CSF from LP1									
74b. CSF from LP2									

Pathogen testing performed:

75. Was CSF tested? <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown		Specimen Collection Date ____/____/____			
If 'yes', was specimen tested for the following:					
<u>Enterovirus</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	Test Type PCR	Test Result <input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Pending	Typed (if positive)? <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> not done		Type _____
<u>West Nile Virus</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	PCR	<input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Pending			
<u>West Nile Virus</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	IgM	<input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Indeterminate <input type="checkbox"/> Pending <input type="checkbox"/> Unknown			
<u>Herpes simplex virus</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	PCR	<input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Pending			
<u>Cytomegalovirus</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	PCR	<input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Pending			
<u>Varicella zoster virus</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	PCR	<input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Pending			
<u>Was other pathogen identified:</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	If positive for other pathogen, specify test type: _____	List other pathogen(s) identified: _____			

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76. Was a RESPIRATORY TRACT specimen tested? <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown Specimen Collection Date __/__/____					
Type of specimen: <input type="checkbox"/> nasopharyngeal swab <input type="checkbox"/> nasal wash/aspirate <input type="checkbox"/> oropharyngeal swab <input type="checkbox"/> other, specify: _____					
If 'yes', was specimen tested for the following:					
<u>Enterovirus/rhinovirus</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	Test Type PCR	Test Result <input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Pending	Typed (if positive)? <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> not done	Type _____	
<u>Adenovirus</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	PCR	<input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Pending	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> not done	_____	
<u>Influenza virus</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	PCR	<input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Pending	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> not done	_____	
<u>Was other pathogen identified:</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	If positive for other pathogen, specify test type: _____	List other pathogen(s) identified:			

77. Was a STOOL specimen tested? <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown Specimen Collection Date __/__/____					
If 'yes', was specimen tested for the following:					
<u>Non-polio Enterovirus</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	Test Type PCR	Test Result <input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Pending	Typed (if positive)? <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> not done	Type _____	
<u>Poliovirus</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	PCR	<input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Pending			
<u>Poliovirus</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	Culture	<input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Pending			
<u>Was other pathogen identified:</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	If positive for other pathogen, specify test type: _____	List other pathogen(s) identified:			

78. Was SERUM tested? <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown Specimen Collection Date __/__/____					
If 'yes', was specimen tested for the following:					
<u>West Nile Virus</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	Test Type PCR	Test Result <input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Pending	Typed (if positive)?	Type	
<u>West Nile Virus</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	IgM	<input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Indeterminate <input type="checkbox"/> Pending <input type="checkbox"/> Unknown			
<u>Was other pathogen identified:</u> <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown	If positive for other pathogen, specify test type: _____	List other pathogen(s) identified:			

79. Was/Is a specific etiology considered to be the most likely cause for the patient's neurological illness? ☐ yes ☐ no ☐ unknown

80. If yes, please list etiology and reason(s) considered most likely cause _____

81. If patient is a confirmed or probable case, will specimens be sent to CDC for testing? ☐ yes ☐ no ☐ unknown

82. If yes, types of specimens that will be sent to CDC for testing:
☐ CSF ☐ Nasal wash/aspirate ☐ BAL spec ☐ Tracheal aspirate ☐ NP/OP swab ☐ Stool ☐ Serum ☐ Other, list _____

Acute Flaccid Myelitis case definition

(<http://c.ymcdn.com/sites/www.cste.org/resource/resmgr/2015PS/2015PSFinal/15-ID-01.pdf>)

Criteria

An illness with onset of acute focal limb weakness AND

- a magnetic resonance image (MRI) showing spinal cord lesion largely restricted to gray matter and spanning one or more spinal segments, OR
- cerebrospinal fluid (CSF) with pleocytosis (white blood cell count >5 cells/mm³)

Case Classification

Confirmed:

- An illness with onset of acute focal limb weakness AND
- MRI showing spinal cord lesion largely restricted to gray matter and spanning one or more spinal segments

Probable:

- An illness with onset of acute focal limb weakness AND
- CSF showing pleocytosis (white blood cell count >5 cells/mm³).